# International Workshop for Young Researchers “Knowing Self, Knowing Others”

# International Workshop for Young Researchers

# "Knowing self, knowing others"

Date: January 29-30, 2011

Venue: Clock Tower Centennial Hall, Kyoto University

Organizers: Kazuo Fujita, Shoji Itakura, and Shoko Suzuki (Kyoto University, Japan)

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# Programme

## January 29 (Sat)

**9:30 Registration (on the 2nd floor )**

**9:55 Opening Remark (Room: International Exchange Hall Ⅱ)**

Masuo Koyasu (Kyoto University, Japan)

Kazuo Fujita (Kyoto University, Japan)

**10:00-12:15 Session 1: Self and others in nonhuman primates**

**(Room: International Exchange Hall Ⅱ)**

**Session Chair: Masako Myowa-Yamakoshi (Kyoto University, Japan)**

Annika Paukner (NICHD, USA): Matching of self and other-possible mechanisms and functions of neonatal imitation in infant macaques

Evan Maclean (Duke University, USA): Attentional perspective taking in chimpanzees and bonobos

Ayaka Takimoto (Kyoto University, Japan): Sensitivity to others' welfare in capuchin monkeys

Toyomi Matsuno (Kyoto University, Japan): Visual body recognition in tufted capuchin monkeys

**12:30-15:00 Poster Session with Lunch (Room: International Exchange Hall Ⅲ)**

**15:15-17:30 Session 2: Social cognition in dog, horse, and human infants**

**(Room: International Exchange Hall Ⅱ)**

**Session Chair: Kazuo Fujita (Kyoto University, Japan)**

Sarah-Jane Vick (University of Stirling, UK): Self control in African grey parrots and domestic dogs

Leanne Proops (University of Sussex, UK): Horse social cognition: Recognizing others and understanding their communicative cues

Ágnes Melinda Kovács (Central European University, Hungary): Representational preconditions for understanding other minds: Evidence from human adults, infants and dogs

Akiko Takaoka (Kyoto University, Japan): Dogs recognize other's features flexibly, not only what they can see but also what they can not see.

**18:00 Social Session (Room: International Exchange Hall Ⅲ)**

## January 30 (Sun)

**9:15-11:30 Session 3: Understanding others**

**(Room: International Exchange Hall Ⅱ)**

**Session Chair: Shoji Itakura (Kyoto University, Japan)**

Ernő Téglás (Central European University, Hungary): The role of self-generated contingencies in understanding communicative intent in infancy and beyond

Janine Oostenbroek (University of Queensland, Australia): Understanding imitation in the newborn period: A longitudinal study perspective

Hika Kuroshima (Kyoto University, Japan): Perception of others' action: Effect of one's own actions in monkeys

Yasuhiro Kanakogi (Kyoto University, Japan): Developmental correspondence between action prediction and motor ability in early infancy

**13:00-15:15 Session 4: Risk, handicap, and happiness**

**(Room: International Exchange Hall Ⅱ)**

**Session Chair: Ruprecht Mattig (Kyoto University, Japan)**

Yoichi Takahashi (Tottori University, Japan): Understanding patients in doctor-patient communications

Alexander Wulf (Hamburg University, Germany): Risk and happiness: An investigation of the social norms governing risk-taking and innovative behavior. A study on Japanese businessmen

Kosuke Asada (Kyoto University, Japan): Pragmatic language deficits in children with Williams syndrome

Ryoko Fujiwara (Kyoto University, Japan): The trickster; Beyond the border between self and others

**15:30-17:45 Session 5: Cultural perspective**

**(Room: International Exchange Hall Ⅱ)**

**Session Chair: Fumio Ono (Kyoto University, Japan)**

Hsin-Yueh Hsu (China Medical University, Taiwan): Exploring the other-race effect in Taiwanese infants and adults

Han HyunJung (The University of Tokyo, Japan): Contact between different cultures and the appropriation of children-centered education - From the perspective of post-colonialism -

Mina Ishizu (London School of Economics and Politics, UK): Useful and reliable knowledge of material progress in comparative global history

Ruprecht Mattig (Kyoto University, Japan): Challenging differences: On the cultural dimension of "knowing self, knowing others"

**17:45 Closing Remark (Room: International Exchange Hall Ⅱ)**

Shoko Suzuki (Kyoto University, Japan)

# List of Poster Presentations

Poster #1 **Pigeons' and bantams' perception of Zöllner illusion: The tendency is opposite to that of humans**

Sota Watanabe[1,2], Noriyuki Nakamura[2,3], Kazuo Fujita[1] ([1]Kyoto University, Japan; [2]JSPS, Japan; [3]Chiba University, Japan)

Poster #2 **Differential effects of spatial separation on visual feature binding by humans and pigeons**

Sho Otaki[1,2], Kazuhiro Goto[1], Shigeru Watanabe[3] ([1] Kyoto University, Japan; [2] JSPS, Japan; [3] Keio University, Japan)

Poster#3 **Image-based and perceptual representation of materials**

Chihiro Hiramatsu[1,2,3], Naokazu Goda[2,4], Hidehiko Komatsu[2,4] ([1]Kyoto University, Japan; [2]National Institute for Physiological Sciences, Japan; [3]JSPS, Japan [4]SOKENDAI, Japan)

Poster#4 **How chimpanzees learn about the structure of a simple game**

Chris Martin (Kyoto University, Japan)

Poster#5 **Mirror self-recognition in three cetacean species**

Hyangsun Chin[1], Masaki Tomonaga[2], Sadahiko Nakajima[1], Yuka Uwano[3], Makoto Yoshii[3] ([1]Kwansei Gakuin University, Japan; [2]Kyoto University, Japan; [3]Port of Nagoya Public Aquarium, Japan)

Poster#6 **Referential behavior in horses (*Equus caballus*)**

Yusuke Hori[1], Ayaka Takimoto[1, 2], Kazuo Fujita[1] ([1]Kyoto University, Japan; [2]JSPS, Japan)

Poster#7 **Body size recognition in dogs (*Canis familiaris*)**

Tomomi Maeda, Kazuo Fujita (Kyoto University, Japan)

Poster#8 **Do degus (*Octodon degus*) understand causality involved in "tool use"?**

Toru Betsuyaku[1,2], Yuki Miyamoto[1], Kazuo Fujita[1]([1]Kyoto University, Japan; [2]JSPS, Japan)

Poster#9 **Syrian hamsters' (*Mesocricetus auratus*) navigation ~Selection and use of various landmarks**

Tomoyuki Tamai, Kazuo Fujita (Kyoto University, Japan)

Poster#10 **Relationship between spatial cognition and action in young children**

Maasa Yoshida, Shoji Itakura (Kyoto University, Japan)

Poster#11 **Effects of description from survey vs. route perspective on spatial representation**

Masashi Sugimoto (Kyoto University, Japan)

Poster#12 **Individual differences in spatial knowledge acquisition from a virtual environment**

Ryosuke Uenaka, Hiroshi Ashida (Kyoto University, Japan)

Poster#13 **Hint seeking in pigeons**

Sumie Iwasaki, Sota Watanabe, Kazuo Fujita (Kyoto University, Japan)

Poster#14 **Do birds (pigeons and bantams) know how confident they are of their perceptual decisions?**

Noriyuki Nakamura[1], Sota Watanabe[2], Toru Betsuyaku[2], Kazuo Fujita[2] ([1]Chiba University, Japan; [2]Kyoto University, Japan)

Poster#15 **Dancing baby**

**— How do 3- to 4-month-old infants respond to a musical beat? —**

Shinya Fujii[1,2], Hama Watanabe[1], Masaya Hirashima[1], Daichi Nozaki[1], Gentaro Taga[1] ([1] The University of Tokyo, Japan, [2]JSPS, Japan)

Poster#16 **Learning and identity formation: Bridging between diverse communities**

Toru Kawai (Kyoto University, Japan)

Poster#17 **Wittgensteinian approach to the concept of person: Attitude toward the other**

Hirotaka Sugita (Hiroshima University, Japan)

Poster#18 **How well do we know others' preferences?**

Ryosuke Niimi, Katsumi Watanabe (The University of Tokyo, Japan)

Poster#19 **Positioning self in maternal family relationship: Using the image drawing method**

Naoko Nishiyama (Kyoto University, Japan)

Poster#20 **Who needs self-control?: Self-control behavior and motivation**

Takayuki Goto (Kyoto University, Japan)

Poster#21 **Awareness of self and other through the expression of caring**

Mahito Katsuura, Tabitha S. Kobata (Kyoto University, Japan)

Poster#22 **MPFC dissociation between self and others in referential task: An fMRI study based on word traits indicated by reaction time**

Ken Yaoi[1,2], Mariko Osaka[3], Naoyuki Osaka[1] ([1]Kyoto University, Japan; [2]JSPS, Japan; [3]Osaka University, Japan)

Poster#23 **Relationship between cooperative choices in the payoff-game situations and social discount rates in pigeons**

Kumiko Hara, Masato Ito, Daisuke Saeki, Tetsuo Yamaguchi (Kyoto University, Japan)

Poster#24 **Recognition of others' knowledge in dogs**

Yijin Li (Kyoto University, Japan)

Poster#25 **Does experience with role play activate theory of mind in a perspective taking task?**

Fumikazu Furumi, Masuo Koyasu (Kyoto University, Japan)

Poster#26 **Can infants predict objects from human and robot's gaze cue?**

Yuko Okumura[1], Yasuhiro Kanakogi[1,2], Shoji Itakura[1] ([1]Kyoto University, Japan; [2]JSPS, Japan)

Poster#27 **Motionese influences infants' understanding and imitation of goal-directed action**

Hiroshi Fukuyama, Masako Myowa-Yamakoshi (Kyoto University, Japan)

Poster#28 **The effect of facial attractiveness and sex on recognition memory**

Kana Kuraguchi, Hiroshi Ashida (Kyoto University, Japan)

Poster#29 **Does in-group cooperation generate out-group threat?**

Sho Tsuboi (Kyoto University, Japan)

Poster#30 **Individual differences of perceiving power**

Yasunori Okada, Takashi Kusumi (Kyoto University, Japan)

Poster#31 **Two ways of understanding human action: Anscombe's distinction between practical knowledge and speculative knowledge**

Yuuki Yamaguchi (Hiroshima University, Japan)

Poster#32 **Self-other confusion caused by undifferentiated visual perception: A clue to the understanding of others' actions**

Yuji Kawai[1], Yukie Nagai[1], Minoru Asada[1, 2] ([1]Osaka University, Japan; [2] JST ERATO Asada Synergistic Intelligence Project, Japan)

Poster#33 **Cultural effect on attentional control style in visual search tasks**

Lei Chen[1], Yoshiyuki Ueda[1], Jun Saiki[1], Michelle Dusko[2], Emily Cramer[2], Ronald A. Rensink[2] ([1]Kyoto University, Japan; [2]University of British Columbia, Canada)

Poster#34 **University students' out-of-class learning**

Yan Jiang (Kyoto University, Japan)

Poster#35 **Academic motivation effects of performance for university students.**

Kai Hatano (Kyoto University, Japan)

Poster#36 **Teachers' collaborative reflection on course design in higher education**

Makiko Oyama (Kyoto University, Japan)

# Abstracts of Work Shop Presentations

## Session 1: Self and others in nonhuman primates

**Session Chair: Masako Myowa-Yamakoshi (Kyoto University, Japan)**

### Matching of self and other - possible mechanisms and functions of neonatal imitation in infant macaques

Annika Paukner
(NICHD, USA)

***Abstract***

Neonatal imitation, the phenomenon in which newborn human infants can accurately imitate facial gestures, has been studied for more than thirty years, yet the mechanisms and functions associated with neonatal imitation remain poorly understood. I will review our recent findings of neonatal imitation abilities in rhesus macaques (Macaca mulatta), and show that neonatal imitation abilities in macaques are surprising similar to neonatal imitation abilities seen in humans. I will argue that there may be a common evolutionary root of this ability, which may have its basis in a facial mirror neuron circuit. Neonatal imitation appears to be linked to communicative signals, intersubjective exchanges and emotional development, which together may shape the foundation of socio-cognitive functioning in later life.

### Attentional perspective taking in chimpanzees and bonobos

Evan MacLean
(Duke University, USA)

***Abstract***

The human-unique ability to acquire language relies on the early emergence of an understanding of attention in others. Although nonhuman apes understand much about others' perception, whether they understand others' attention is unknown. I will discuss three experiments that examined chimpanzees' and bonobos' ability to infer the target of an experimenter's attention under conditions that have been linked to word-learning in humans. In each experiment an actor vocalized excitedly while gazing ambiguously toward an object and a second location/item on the same visual plane. We manipulated whether the actor was familiar with the object before his emotional reaction by varying 1.) his physical orientation (facing vs. not facing object) 2.) the position of a visual barrier (blocking vs. not blocking actor's view of object), or 3.) the identity of the individual who visually inspected the object (actor vs. different individual). In each experiment we measured whether subjects looked at the object or the alternative target

of the actor's gaze. We predicted that if subjects recognized when the actor was previously familiar with the object, they would search for an alternative target of his attention more frequently in these trials than when the object was new to the actor at the moment of his surprised reaction. In all three contexts nonhuman apes used information about what was new versus familiar to another individual to determine the precise target of that individual's attention. These results suggest that the last common ancestor of humans, chimpanzees, and bonobos was likely able to take the attentional-perspective of others, but that an evolutionary-developmental acceleration of these abilities accompanied by the motivation to share attentional states with others was critical for language evolution in our species.

## Sensitivity to others' welfare in capuchin monkeys

Ayaka Takimoto[1,2], Kazuo Fujita[1]

([1]Kyoto University, Japan; [2]Japan Society for the Promotion of Science)

***Abstract***

In our previous study, we demonstrated that capuchin monkeys (*Cebus apella*) behave prosocially to group members when the operator monkey can obtain the same reward regardless of his/her own choice in an experimental reward sharing situation (Takimoto *et al.*, 2010). In the present study, we investigated whether the same monkeys would provide high-value rewards to familiar group members at a small expense of their own reward's value (Experiment 1) and whether the recipient's cooperation facilitates prosocial reward sharing (Experiment 2). Two monkeys faced each other. The operator monkey chose one of two food containers placed between the participants, each containing a reward for him/herself and another for the recipient. When the operator made a selfish choice, the operator obtained the high-value reward and the recipient passively received the low-value reward. In contrast, when the operator made a prosocial choice, both the operator and the recipient received a middle-value reward. The recipients were either the highest- or lowest-ranking member of the group, and the operators were middle-ranking. In Experiment 1, in which the recipient received a reward without any labor, the operators almost always made the selfish choice whether a recipient was present or not. In Experiment 2, the recipient either received a reward with no labor (non-cooperative condition) or had to pull the handle of the board so that the operator could operate a container (cooperative condition). Results showed that operators made the prosocial choice for both recipients more often than when the recipient was absent only in the cooperative condition. Our study suggests that capuchins' motivation for delivering better food is enhanced by cooperation and they

show sensitivity to others' welfare even in a costly reward sharing situation.

## Visual body recognition in tufted capuchin monkeys

Toyomi Matsuno
(Kyoto University, Japan)

***Abstract***

Body posture is an important communication medium for both humans and nonhuman primates. Therefore, the exact perception of expressed body postures is an ecologically important function of primate visual systems. Actually, our visual perception is specially tuned for such social information. Recent studies on visual object perception in humans have revealed that body forms are processed in our visual system differently from other visual objects (Downing, Jiang, Shuman, & Kanwisher, 2001; Reed & Farah, 1995). However, little is known about whether such a function is evolutionarily shared with nonhuman primates who have different constraints on body postures. Here, I investigated how capuchin monkeys visually process body postures, in comparison with humans. Five experiments revealed that monkeys exhibit the body-inversion effects i.e., body posture discrimination is impaired by inversion, which disrupts the configural relationships of body parts. These results suggest that monkeys configurally process body postures as humans do. Further experiments using biomechanically impossible human body figures revealed that monkeys and humans have different sensitivity to the biomechanical constraints on the human body figures. These results suggest the existence of both species-general and species-specific processes in visual body recognition.

## Session 2: Social cognition in dog, horse, and human infants

**Session Chair: Kazuo Fujita (Kyoto University, Japan)**

### Self control in African grey parrots and domestic dogs

Sarah-Jane Vick

(University of Stirling, UK)

***Abstract***

Humans and other animals often find it difficult to exert self control; immediate or large rewards are very hard to resist even when these may reduce overall reward payoffs in the long run. A capacity for behavioural flexibility, in terms of inhibiting prepotent responses, can allow an individual to maximize rewards and is therefore likely to have important fitness consequences. We modified tasks developed to assess self-control in primates to explore behavioural inhibition in parrots and domestic dogs. African grey parrots were tested on both a reverse contingency task and a delay maintenance task. The reverse contingency tasks requires that the subject choose the smaller of two food arrays presented in order to gain the larger (incongruent) array as a reward. A visible incremental reward procedure (one seed added per second) was used to test the ability of the same parrots to maintain delay of gratification for an increasingly valuable and accessible reward. As reported in nonhuman primates, the parrots found these tasks cognitively changing and there was considerable individual variation in performance. Domestic dogs were also tested using a delay maintenance task; examining their ability to tolerate increasing delays when given the opportunity to exchange a low value reward for a more valuable one. The dogs performed as well as primates tested using the same paradigm, although again with individual variation in the maximum length of delay tolerated. These studies indicate that these paradigms can also be used with non primate species in order to better understand between and within species differences in the capacity for self control.

### Horse social cognition: Recognizing others and understanding their communicative cues

Leanne Proops

(University of Sussex, UK)

***Abstract***

The "social intelligence hypothesis" (Jolly 1966; Humphrey 1976; Shultz and Dunbar 2010) states that the main selection pressure driving evolutionary increases in

(neocortical) brain size and cognitive ability is increases in social rather than ecological complexity. Social cognition studies of many large brained primate species have shown them to be highly socially skilled but relatively few other taxa have been studied to date, especially those thought to possess less complex cognitive skills such as ungulates. Here I give a brief outline of the work we have conducted into equine social cognition in two areas relating to the knowledge of others. Firstly I review our work employing expectancy violation and preferential looking paradigms to demonstrate that horses are capable of cross-modal individual recognition of both conspecifics and human handlers. Secondly I consider the extent to which adult and juvenile horses are capable of utilising various communicative cues from human social partners in object choice and attention attribution tasks (Proops et al. 2009; Proops and McComb 2010; Proops et al. 2010). Finally I discuss what these results can tell us about the phylogeny and ontogeny of these social skills and the possible proximate mechanisms underlying these abilities in domestic horses.

## Representational preconditions for understanding other minds: Evidence from human adults, infants and dogs

Ágnes Melinda Kovács
(Central European University, Hungary)

***Abstract***

Successful social interactions and understanding the behavior of other agents requires computing others' internal states, such as goals, intentions and beliefs. Research in the last quarter of century have suggested that such abilities arise relatively late in childhood and require effortful computations. However, there is a growing body of recent evidence suggesting that such abilities are present already in the second year of life. Here, we present a series of studies suggesting on the one hand that infants in their first year compute others' belief representations, and on the other hand they point to the extraordinary efficiency of the belief attribution system. The data suggests that this system is triggered automatically by the presence of a potential social agent, and that the agent's beliefs are stored in a format sufficiently similar to the participants' own beliefs to affect behaviour in adults and infants. In implicit false-belief tasks, expectations about an object's presence modulate adults' detection latencies, infants' looking times, and infants' searching behaviour, irrespectively of whether the expectations are their own or attributed to the agent. However, preliminary data suggests that dogs searching behaviour was not affected by other agents' expectations. Hence, human infants and adults seem to automatically compute the contents of others'

belief representations, which can influence their behaviour even though these representations are in conflict with their own representations about the reality.

## Dogs recognize other's features flexibly, not only what they can see but also what they can not see

Akiko Takaoka

(Kyoto University, Japan)

***Abstract***

A number of studies have reported that dogs (*Canis familiaris*) can use various human social cues such as pointing gesture to find hidden food in object choice tasks. Dogs have a tendency to rely on pointing gesture even when it is misleading and prevent them from correctly solving the task (Szetei et al. 2003). Petter et al. (2009) reported that dogs could learn to respond differently to the cooperative experimenter who pointed a baited container and the competitive experimenter who pointed empty container. In this study, we investigated whether dogs change their choice flexibly on the immediate experience in the object choice task. House dogs were tested in three phases in sequence. In the first phase, a human experimenter pointed to the baited container in a standard socially cued object choice task. Second, they were tested after observing which container had food while the experimenter indicated the empty container. Finally, they were retested in the first task. Most of the dogs reliably followed pointing gesture in the first phase, but in the third phase, after they had been deceived in the second phase, dogs were much less likely to choice the container pointed at. The results indicate that dogs do not follow human pointing gesture blindly and can change their behavior flexibly depending on the situation.

## Session 3: Understanding others

**Session Chair: Shoji Itakura (Kyoto University, Japan)**

### The role of self-generated contingencies in understanding communicative intent in infancy and beyond

Ernő Téglás

(Central European University, Hungary)

***Abstract***

Young infants are equipped with a sensitive contingency detection mechanism to identify different levels of social contingencies from very early on (Gergely and Watson, 1996), often ascribing communicative agency to the entities they interact with (Movellan and Watson, 2002; Johnson, Slaughter and Carey, 1998). While most cues indicating infant-directed communicative intention, such as eye contact and infant-directed speech are derived from human-like features or human behavior, contingency can provide a more abstract cue that allows for higher flexibility in finding communicative partners.

In a series of studies involving 12-month-old infants, we have explored different aspects of the contingency perception mechanism. On the one hand, we investigated physiological and cognitive indexes of contingency detection and we found data pointing to the role of contingency detection in detecting potential communicative partners. On the other hand, we studied whether some characteristics of these mechanisms remain unchanged during development.

Central to these questions we investigated whether contingent reactivity triggers inferences related to the referential nature of communication. In an eye-tracker paradigm we find that contingent reactivity elicited by infants' incidental leg kicking is interpreted as cue for communicative intention. Infants followed the orientation change of objects significantly more often if these objects were reacting contingently to their behavior than that of non-contingent objects. In a subsequent study we explored whether the orientation of the contingently moving objects is interpreted referentially. Recent findings (Yoon, Johnson and Csibra, 2008) demonstrated a striking effect of ostensive-referential cues (eg. human pointing) on infants' object representation. In a change blindness paradigm, the communicative context made infants more sensitive to changes in the identity of objects than to location changes. We applied a similar manipulation to our leg-kicking procedure and measured infants' looking time.

Our data show that detecting and interpreting contingent reactivity has a specific role in infants' early interactions. Infants did not only follow the orientation of contingently moving objects but they also showed an encoding bias specific to ostensive-referential communication, even though no human agent was actually present. Thus, infants seem to have access to a dedicated system that is able to process amodal cues of interactions conveying this way a great flexibility in identifying communicative partners.

## Understanding imitation in the newborn period: A longitudinal study perspective

Oostenbroek, J., Slaughter, V., Nielsen, M., Suddendorf, T.
(The University of Queensland, Australia)

***Abstract***

Neonatal imitation occurs when an infant copies behaviours such as facial, manual and vocal gestures of a social other. Meltzoff and Moore (1977) first reported its existence over 30 years ago, but the phenomenon remains highly contentious because the evidence for it is mixed. One view suggests that neonatal imitation is a matching process that provides a framework for neonates to intentionally communicate with others (Meltzoff & Moore, 1977). Other views suggest that what looks like neonatal imitation is really only a product of arousal (Jones, 1996) or is a reflexive, involuntary response (Anisfeld, 2005). Due to the controversy surrounding neonatal imitation, the aim of this study was to establish the prevalence and reliability of the phenomenon in the newborn period by examining it longitudinally. A secondary aim was to investigate the role that temperament plays in predicting imitation.

Facial, manual and vocal gestures were modelled to sixty neonates from birth through to six months. Data from a subset of these infants will be presented. A parental survey developed for the Australian Temperament Project (Sanson et al., 1986) was used to classify infants' temperaments. Preliminary analyses have revealed reliable selective imitation at 1 week of age. Neonates made significantly more tongue protrusions than mouth openings and index finger points when tongue protrusion was modelled ($p = .000$). They also made significantly more grasps than index finger points when grasping was modelled ($p = .000$). Infants tended to imitate tongue protrusion through to 12 weeks of age, when it then faded. There was a medium-sized positive correlation between easy (versus difficult) temperament and tongue protrusion response frequency, Pearson's $r = .31$. Analyses are ongoing but the pattern of data to date supports the view that newborn imitation is a reliable phenomenon and further suggests that its expression varies with infants' temperament.

## Perception of others' actions: Effect of one's own actions in monkeys

Hika Kuroshima[1] , A. Paukner[2], I. Kaiser[3], S.J. Suomi[2], D.M. Fragaszy[4], K. Fujita[1]
([1] Kyoto University, Japan; [2]NICH, USA; [3]Heidelberg University, Germany; [4]University of Georgia, Athens, USA)

***Abstract***

We investigated the link between perception of other's action and own experience in adult capuchin monkeys and infant rhesus monkeys. In Experiment 1, adult capuchin monkeys observed an actor who tried to open a food container by a familiar or an unfamiliar action. When a familiar action was done, the monkeys paid more attention to the actor than when an unfamiliar action was done. In Experiment 2, the actor showed the monkeys two unfamiliar actions toward a new food container. Looking duration of the monkeys toward the actor was not different between actions. The monkeys were then trained to open the new container by one of the unfamiliar actions. After the training, in Experiment 3, we repeated the same procedure as in Experiment 2. The monkeys paid more attention to the actor when the trained action was done. We also investigated the difference of active and observational experiences by infant rhesus monkeys. In the training phase, half of the monkeys were trained to open the container and another half just observed the actor opened it. Only the active experience group looked longer at the actor when she was doing the trained action. These results showed that perception of other's actions in monkeys, as in humans, was affected by own experience of the action. These results also suggest that monkeys may interpret the meaning of other's action through one's one experience.

## Developmental correspondence between action prediction and motor ability in early infancy

Yasuhiro Kanakogi, Shoji Itakura
(Kyoto University, Japan)

***Abstract***

How do infants come to understand the goal of others' actions? Several neurophysiological and brain-imaging studies have demonstrated that others' actions are understood through the direct matching process of a mirror neuron system, where an observed action is mapped onto the observer's own motor representation of that action. Recently, the ontogeny of the direct matching process of the mirror neuron system has been the focus of much research. In fact, some developmental studies have demonstrated that action perception and action execution have mutual influence and the link between action perception and action execution. However, to date no studies

have investigated one-to-one synchrony in the development of action perception and action execution in early infancy. Examining this question would provide converging evidence of the development of a direct matching process predicted by the mirror neuron system. Here, we show the developmental correspondence between action prediction and motor ability by comparing gazing and grasping responses to interesting objects in 4- to 10- month-old infants and adults. The onset of infants' ability to predict the goal of others' action was found to be synchronized with the onset of their own ability to perform that action. Moreover, there was one-to-one correspondence between action prediction ability and motor ability of same action. Furthermore, we found different developmental trajectories for the prediction of human and inanimate agents' actions. Our findings indicate that the ability to predict others' action goals requires the corresponding motor ability, providing ontogenetic evidence for a direct matching process by a mirror neuron system.

## Session 4: Risk, handicap, and happiness

**Session Chair: Ruprecht Mattig (Kyoto University, Japan)**

### Understanding patients in doctor-patient communications

Yoichi Takahashi

(Tottori University, Japan)

***Abstract***

In doctor-patient communications, "empathy" is essential concept for doctors to understand patients. It is also required to educate doctors who can communicate with their patients empathically in medical education. Considering understanding patients in terms of empathy, two opposite questions come up. One is "Can doctors empathize with their patients?" and the other is "Can doctors have no empathy with their patients?" Concerning the former question, it goes without saying that patients have various suffering and emotions. However, it can be very difficult for doctors to understand these emotions as they are. This is because the subjectivity of the doctors who try to understand patients limits their recognition of the patients' inner emotions inevitably. The latter question can be restated as follows: can doctors understand their patients without empathizing with them, in other words, without experiencing a patients' feelings? The idea that doctors should empathize with patients objectively and neutrally from patients' emotions corresponds with the common view in today's medicine. In contrast, however neutrally doctors try to communicate with their patients, it may be hard to ignore or control doctors' feelings inspired by their patients. As mentioned above, understanding patients is in the strain of ambivalent way of empathy. That is, doctors have difficulty in both empathizing with patients and having no empathy with them. In my talk, I would like to give a topic on what it is to understand patients in this antinomy

### Risk and happiness: An investigation of the social and legal norms governing risk-taking and innovative behavior. A study on Japanese businessmen

Alexander Wulf

(Hamburg University, Germany)

***Abstract***

The aim of this empirical research is to develop and test a theory on social norms that govern risk-taking and innovative behavior in risk averse cultures like Japan. I use a Grounded Theory approach based on qualitative expert interviews to build this theory

and employ a quantitative content analysis applied to media data in order to test it. I critically assess the extent to which the triangulation methodology employed is suitable for this research and for future research in the field of social and legal norms. The research is structured in the following way: first, I present the research design employed and outline my research strategy. Second, I introduce the triangulation approach and each of its methodological elements. I selectively discuss strengths and weaknesses of each methodology to justify my decision to combine them in a triangulation approach. Third, I present the procedure used in the research. Fourth, I present the results of my qualitative and quantitative analysis as obtained by each element of the triangulation method. Finally, I discuss the contribution of this empirical research to the field of study and present my methodological conclusion.

## Pragmatic language deficits in children with Williams syndrome

Kosuke Asada

(Kyoto University, Japan)

***Abstract***

Williams syndrome (WS) is a rare genetic neurodevelopmental disorder caused by the microdeletion of chromosome 7q11.23. Children with WS are very friendly and talk fluently, but often face problems in daily communication. We investigated the pragmatic language abilities of children with WS and typically developing (TD) controls. In Experiment 1, we examined whether children could correct others' misunderstandings in an object-choice situation. After children chose the object, the experimenter verbally expressed his understanding or misunderstanding of the choice and then gave the children the desired or undesired object. Children with WS produced fewer verbalizations for clarification than did TD children particularly when they were verbally misunderstood, although these children generally talked almost as much as the TD children. In Experiment 2, we examined whether children could modify their verbal communication according to others' attention. Although TD children verbalized more when they were not attended to than when they were attended to, children with WS showed the opposite pattern, verbalizing more when they were attended to than not attended to. The findings suggest that children with WS have difficulties with communicative skills/motive for sharing information or attitudes with others. We propose that such difficulties underlie the pragmatic language deficits of children with WS.

# The trickster; Beyond the border between self and others

Ryoko Fujiwara
(Kyoto University, Japan)

***Abstract***

Two types of schools play an educational role for Indigenous people in Vancouver, Canada. One of them is the "First Nations School" in the preserve; the other is the "Provincial School" in which both indigenous students and non indigenous students are involved. I will deal with one attempt in latter type of school. In order to affirm positive identities of Indigenous people, the subject named *First Peoples* has been created in the curriculum. It is the first one where Indigenous people could participate in the process of making the curriculum in provincial school. From political and social perspectives, although the subject of *First peoples* has the advantage of showing up the Indigenous identity, it draws a line between the category of indigenous people as *self* and other ethnic groups as *others*.

However, seeing *First peoples* at micro level, the content and philosophy, you can see the possibility of crossing the border between self and others at the personal dimensions. In particular, my analysis will focus on the Trickster in storytelling, and the underlying philosophy (aesthetics).

The Trickster is the character in Storytelling of Indigenous people. Main feature of The Trickster is the role of mediator for the dichotomy such as good and evil, male and female, mind and body, and self and others. In other words, The Trickster is a presence that breaks the existing categories and establishes the dialectical discussions. By reference to the philosophy (aesthetics) and a specific story in Oral Tradition, I will provide a new window on crossing the border between self and others beyond the created ethnic categories. Eventually, I will introduce the pedagogical implication of this subject, *First peoples*, in Provincial education.

## Session 5: Cultural perspective

**Session Chair: Fumio Ono (Kyoto University, Japan)**

### Exploring the other-race effect in Taiwanese infants and adults

Hsin-Yueh Hsu, Sarina Hui-Lin Chien
(China Medical University, Taichung, Taiwan)

***Abstract***

Human adults can better recognize own-race faces than other-race faces; this is referred to as the *other-race effect (ORE)*. The present study investigated whether the ORE exist in Taiwanese infants in the first year of life when the visual system develops rapidly. In order to assess infants' ability to discriminate faces as they age, the stimuli were manipulated with three levels of discriminability (Easy, Medium, and Hard) for three ethnic groups (Asian, Caucasian, and African). We adopted the visual paired-comparison (VPC) task to assess 4-, 6-, and 9-month-old infants' discriminability for the familiar/novel faces via recording infant's looking preference (fixation time). Adult experiment was intended to offer a performance reference, which was conducted in comparable fashion except that an additional "identical" condition was added. We found that 4-month-old infants can only discriminate the Asian "easy" faces, showing an early emergence of own-race advantage. 6-month-old infants can discriminate all three ethnic groups in the easy conditions. 9-month-old infants can further discriminate Asian and Caucasian faces in the easy and medium conditions, but stay at the easy condition for African faces. Adults' accuracy decreased and response time increased as the stimulus difficulty increased, indicating the validity of the stimulus difficulty. Taken together, these findings suggest a mixture of general improvement in face processing ability and a specific tuning of own-race-face experience. Thus, we proposed a *facilitation hypothesis* that the ability to process other-race faces may stay at basic level while the ability to process own-race faces can further refine.

*This study was supported by the National Science Council of Taiwan Grants # 98-2410-H-039-002 and # 99-2410-H-039-003-MY3 to Dr. S. H. L. Chien.

# Contact between different cultures and the appropriation of children-centered education - From the perspective of post-colonialism -

Han HyunJung
(The University of Tokyo, Japan)

***Abstract***

The aim of this presentation is to consider the 'difference' that occurs in contact between different cultures, and the process of translation / appropriation of these differences into one's own culture, based on the perspective of post-colonialism. And this presentation focuses on how children-centered educational thought had been translated and appropriated to colonial society through children's self-narrative writings in children magazines.

Anthropology has always had a main role in the study of cultures. Its purpose is to consider the role of different cultures toward their own culture and understand the differences. But because its premise is the difference itself, the dynamics of the process that difference is historically structured become lost. This comes from the result of negotiation between different cultures. For example, there is good evidence that the cultural differences are continuously reproduced under globalization. Cultural studies deal with the process of cultural production under a structured social situation. In addition, post-colonialism perspective, which is the theoretical basis of different cultural studies, considers the un-equality of authority, social context, and problem of narration.

Contact between cultures is a process of translation. At this point, translations progress toward both the homogeneity and the differences at the same time. It is also applied to the process of translation between the center and neighboring areas. While it proceeds to homogeneity, the possibility of talking the differences is born from there. So there is an ironical recognition, that though the original concept is same, there occurs different understandings and appropriations of the concept through the position of translation.

And I'd like to deal with the concept of children-centered education and show how this concept translated into colonial Chosun. This case really shows the ambivalent aspects of this process, which are the centralization and de-centralization (localization) of one same concept, children-centered education.

## Useful and reliable knowledge of material progress in global history

Mina Ishizu
(London School of Economics, UK)

***Abstract***

This short presentation will introduce the research project 'Useful and reliable knowledge in global histories of material progress in the East and the West' (URKEW). Funded by the European Research Council, the project is largely inspired by the recent debates over comparative global economic history of Asia and Europe. It is comparative research of long-term global histories of material growth associated with the scholarship of Max Weber and Joseph Needham. The working hypothesis is that, in the past several centuries, Western exceptionalism in economic growth has been based upon a distinct regime for the generation and diffusion of useful and reliable knowledge for agricultural and industrial production. Based on this hypothesis, the project is focused upon the comparison of institutions, cosmologies and cultures which promoted or restrained the accumulation of such knowledge in the East and the West in the early modern period. The regions of comparison are: China, Europe, India, Islamdom and Japan. Five postdoctoral research officers conduct regionally based research in comparative perspective under the supervision of the project leader Professor Patrick K O'Brien.

*In the presentation I will talk about my experience working in URKEW project as well as some preliminary research results. (Please see the link for more about the project.)
http://www2.lse.ac.uk/economicHistory/Research/URKEW/aboutUrkew.aspx

## Challenging differences: On the cultural dimension of "knowing self, knowing others"

Ruprecht Mattig
(Global COE, Kyoto University, Japan)

***Abstract***

This paper points out the importance of considering the topic of "Knowing Self, Knowing Others" in terms of culture. The word "cultural shock" demonstrates that other cultures are often experienced as strange and puzzling. The paper examines the possibilities and challenges of understanding different cultures through cultural analysis. It draws on central writings in cultural anthropology; in particular, it refers to Ruth Benedict's and Takeo Doi's attempts to understand Japanese culture. It will be considered that it is not possible to gain "objective" knowledge about others through

cultural analysis; rather, cultural analysis creates interpretations of others that can always be deepened by succeeding interpretations. Moreover, the understanding of other cultures will eventually lead to new and challenging insights into the self. The paper concludes with considering the significance of cross-cultural dialogues in anthropological research.

# Abstracts of Poster Presentations

Poster #1

**Pigeons' and bantams' perception of Zöllner illusion: The tendency is opposite to that of humans**

Sota Watanabe[1,2], Noriyuki Nakamura[2,3], Kazuo Fujita[1]

([1]Kyoto University, Japan; [2]JSPS, Japan; [3]Chiba University, Japan)

***Abstract***

We examined whether pigeons *(Columba livia)* and bantams (*Gallus gallus domesticus*) perceive Zöllner illusion in which parallel lines look non-parallel due to numbers of short hatches superimposed on the lines. First, we used a pair of non-parallel lines and trained our birds to peck the narrower (or wider) of the two gaps at the ends of the lines. After adapting the subjects to the target lines having random-oriented hatches (which cause little illusion at least to humans), we tested the pigeons' responses in randomly inserted probe trials, in which hatches that should, in human standards, induce Zöllner-like illusion replaced the random-oriented ones. The tentative results suggest the possibility that both pigeons and bantams do perceive an illusion from Zöllner figures, but the tendency is contrary to that of humans.

Poster #2

**Differential effect of spatial separation on visual feature binding by humans and pigeons**

Sho Otaki[1,2], Kazuhiro Goto[1], Shigeru Watanabe[3]

([1] Kyoto University, Japan; [2] JSPS, Japan; [3] Keio University, Japan)

***Abstract***

Objects in our visual world normally consist of multiple features. In order to examine how humans and pigeons bind features into a coherent object, we compared efficiency to locate a target that shared its components with distractors. In the binding condition, the target consisted of red horizontal and green vertical lines, and distractors consisted of the same colors and line orientations with their combinations interchanged. In the feature condition, only one of the two colors was shared between the target and distractors. Both species located the target faster in the feature than binding conditions, implying that binding requires attention. We then examined how spatial separation affects on visual feature binding. The target and distractors consisted of the two colored lines as earlier but both lines were aligned vertically either adjacent or apart. The spatial separation had little affect on target localization in humans but hampered it in pigeons.

Poster#3

**Image-based and perceptual representation of materials**

Chihiro Hiramatsu[1,2,3], Naokazu Goda[2,4], Hidehiko Komatsu[2,4]

([1]Kyoto University, Japan; [2]National Institute for Physiological Sciences, Japan; [3]JSPS, Japan [4]SOKENDAI, Japan)

***Abstract***

Daily objects made from real-world materials (metal, wood, fabric etc.) have their own surface qualities. Surface quality provides important information for object identification and categorization. It also influences affective impressions, leading to appropriate interaction with the objects. Little is known, however, about how surface quality of materials is represented in the brain, or how that representation is related to material perception or the physical properties of material surfaces. By combining multivoxel pattern analysis of functional magnetic resonance imaging data with perceptual and image-based physical measures of material properties, we found that representation of materials is transformed from image-based representation in early visual areas into perceptual category representation along the ventral pathway. We suggest that meaningful information about multimodal aspects of real-world materials resides in the ventral cortex around the fusiform gyrus, where it can be utilized for categorization of materials.

Poster#4

**How chimpanzees learn about the structure of a simple game**

Chris Martin

(Kyoto University, Japan)

***Abstract***

In this study, 3 pairs of chimpanzees were exposed to a simple two-player computer game called /matching pennies/. On each trial, each subject was simultaneously given a binary choice between stimuli on a computer touch-panel in full view of one other chimpanzee. The choice involved pressing one of two identical stimuli located on the top and bottom of a shared touch panel screen. If they both chose the top or bottom stimuli, the first chimpanzee (called the matcher) would win a food reward. If they chose different sides (for example, one subject chooses the top stimuli and the other subject chooses the bottom), then the second chimpanzee (called the mismatcher) would win a food reward. The best strategy in this game is very simple: to wait for the opponent to choose first, and then make one's own choice accordingly. We present data on the

spontaneous acquisition of such waiting behavior, as well as the overall strategic adjustments made by players as they gradually learned about the structure of the game.

Poster#5

**Mirror self-recognition in three cetacean species**

Hyangsun Chin[1], Masaki Tomonaga[2], Sadahiko Nakajima[1], Yuka Uwano[3], Makoto Yoshii[3]

([1]Kwansei Gakuin University, Japan; [2]Kyoto University, Japan; [3]Port of Nagoya Public Aquarium, Japan)

***Abstract***

We investigated mirror self-recognition in the captive two bottlenose dolphins, three belugas and one pacific white-sided dolphin. Each participant was marked above the left eye and at the top of head during the experimental sessions. Behaviors of the dolphins were video-recorded during the 10-minutes session. One bottlenose dolphin directed her left side of the body toward the mirror more frequently than the right side. One beluga showed rubbing behavior against the wall of the pool which was seemed to try to clean up the mark. These results might suggest the evidence for mirror self-recognition in these individuals.

Poster#6

**Referential behavior in horses (*Equus caballus*)**

Yusuke Hori[1], Ayaka Takimoto[1, 2], Kazuo Fujita[1]

([1]Kyoto University, Japan; [2]JSPS, Japan)

***Abstract***

Domesticated animals are characterized by the variability of breeds. However, there are few scientific researches about the behavioral differences between breeds. In the present study, we investigated behavioral differences between two horse breeds which have different history, thoroughbreds and creoles. The experimenter put a reward into a transparent box and closed it firmly so that horses could not take the reward. We compared the referential behavior towards the experimenter between thoroughbreds and creoles. There were no differences in the frequency and the duration of the referential behavior, but the latency before looking at the experimenter tended to be shorter in thoroughbreds than in creoles. This result suggests the possibility that there are breed differences in horses' social cognition and behavior. However, we cannot exclude the environmental effect (e. g. feeding environments, trainings). We need to replicate the present result by using larger samples.

Poster#7

**Body size recognition in dogs (*Canis familiaris*)**

Tomomi Maeda, Kazuo Fujita

(Kyoto University, Japan)

***Abstract***

We examined whether dogs recognize their own body size. Dogs were restrained in the small compartment with a doorway-like aperture on the front wall. Dog owner stayed outside of the compartment, positioning him/herself between the aperture. On the experimenter's signal, the owner encouraged his/her dog to get through the aperture. We videotaped dogs walking through apertures of different widths. More than half of dogs showed postural adjustments when the width of apertures was narrower than about dogs' exact physical size. Our results suggest dogs recognize their own body size almost exactly and they can adapt their behavioral choice in the relation between the representation of body size and the environment.

Poster#8

**Do degus (*Octodon degus*) understand causality involved in "tool use"?**

Toru Betsuyaku[1,2], Yuki Miyamoto[1], Kazuo Fujita[1]

([1]Kyoto University, Japan; [2]JSPS, Japan)

***Abstract***

One of the important questions in the research of animal tool use is whether and how they understand causal relationships involved in tools and outcomes. Although some studies report the tool use of rodent species in natural or laboratory settings, their understanding of causality is less well understood. To investigate how degus (*Octodon degus*) understand causality relevant to the tool use, we trained them in the 2-choice hook-pulling task, which is similar to the research of capuchin monkeys (Fujita et al.,2003). In the shaping phase, most subjects learned to pull the hook-like tools in order to get a piece of food pellet placed beyond their reach. After the shaping, they were trained to choose from 2 options of tools, 1 of which successfully obtain food whereas the other did not. Our tentative result might suggest they have some difficulty to understand the spatial relationships between tool and food.

Poster#9

**Syrian hamsters' (*Mesocricetus auratus*) navigation ~Selection and use of various landmarks**

Tomoyuki Tamai, Kazuo Fujita

(Kyoto University, Japan)

***Abstract***

We examined how Syrian hamsters used visual cues distant from targets to search for 1 target pole from 24 poles in a circular arena. In training, there was a constant extra-maze cue in front of the target pole in Group1, and there were two objects as landmarks putting a target pole between them and an extra-maze cue in Group2. Group2 learned the place of a target better than Group1. Group1 checked poles in front of the extra-maze cue in chance in *Extra-maze cue rearrangement test*. Group2 checked poles around two objects in *Extra-maze cue removal test*, but checked poles in front of the extra-maze cue in chance in *Landmark removal test*. Placing landmarks and the extra-maze cue in conflict, Group2 checked poles in front of the extra-maze cue more often than chance. It is thinkable that hamsters use each distant cue combining with each other.

Poster#10

**Relationship between spatial cognition and action in young children**

Maasa Yoshida, Shoji Itakura

(Kyoto University, Japan)

***Abstract***

We studied the relationship between spatial cognition and action in young children. Previous studies revealed that the development of spatial cognition in infancy was influenced by their motor development. However, in young children, results were not consistent. In this study, we used search task with child locomotion condition and table rotation condition. We also set up easy and difficult tasks. In experiment 1, 3 and 5 years children had no difference between conditions. Only 4 years children were better performance in child locomotion condition than in table rotation condition in difficult task. Previous studies showed that locomotion experience in child facilitated appropriate visual attentiveness, and then in experiment 2, we reduced visual cues and used the same task with experiment 1. This experiment showed that 4 years children had no difference between conditions. We discussed these results in terms of children's flexible use of their motor information.

Poster#11

**Effects of description from survey vs. route perspective on spatial representation**

Masashi Sugimoto

(Kyoto University, Japan)

***Abstract***

People can form spatial representations from texts. When doing so, two types of perspectives are available; survey perspective and route perspective. In survey perspective, they use "bird's eye" view and employ North, South, East and West to express directions. In route perspective, on the other hand, they were taken to "mental tour" and use front, back, left and right. This study focused on the comparison of the necessity of spatial inference in addition to the viewpoint of previous study. Participants read spatial text, answered true or false questions and were measured their performance to the question. The results showed that there are differences not only based on the description perspective but also based on test perspective. These results suggest the perspective used in the description and that in the test have effects on spatial representation. They also suggest that people's spatial representation may be survey type.

Poster#12

**Individual differences in spatial knowledge acquisition from a virtual environment.**

Ryosuke Uenaka, Hiroshi Ashida

(Kyoto University, Japan)

***Abstract***

We often experience virtual environment on TV or TV game and sometimes are required to acquire a virtual spatial knowledge. In a real environment, Ishikawa & Montello (2005) showed some adult participants manifested accurate metric knowledge from first experience of the route in a real environment, and other participants never manifested accurate metric knowledge through repeated sessions. These results indicate the existence of individual differences in the spatial knowledge acquisition. In the present study, using a virtual environment, we investigated the individual differences in spatial knowledge acquisition. Eye movements were also recorded during a task. Spatial acquisition was measured in three virtual maps; however, consistent individual differences were not observed across maps. Our findings may indicate that spatial knowledge of a virtual environment is acquired through different processes from that of a real environment.

Poster#13

**Hint seeking in pigeons**

Sumie Iwasaki, Sota Watanabe, Kazuo Fujita
(Kyoto University, Japan)

***Abstract***

We examined whether pigeons could monitor their own knowledge state and seek new information in need. The task required the pigeons to learn novel sequences of responses for various trios of illustrations. On half of the trials, subjects were given the opportunity to ask for "hints" as to the next correct response in a sequence. We analyzed when the pigeons sought hints. Two out of four pigeons sought hints in the first session more often than in the last session, and the frequency of hint seeking was inversely related to accuracy on forced trials in which hints were unavailable. This result may show that pigeons have an ability to differentiate between the cognitive states of knowing and not knowing.

Poster#14

**Do birds (pigeons and bantams) know how confident they are of their perceptual decisions?**

Noriyuki Nakamura[1], Sota Watanabe[2], Toru Betsuyaku[2], Kazuo Fujita[2]
([1]Chiba University, Japan; [2]Kyoto University, Japan)

***Abstract***

We examined whether pigeons and bantams were able to recognize confidence about perceptual decisions by using a betting procedure. We trained birds to search for a differently colored disk among others displayed on a touch-sensitive monitor. In test, the birds were required to choose one of two confidence icons, "risk" and "safe", after the visual search. "Risk" choices after correct responses in the visual search were reinforced by food and light, while those after incorrect responses resulted in timeout. "Safe" choices were always reinforced by food and light or only by light. The percentages of "safe" choices after incorrect responses were higher than those after correct ones in six pigeons and two bantams. We confirmed transfers of this behavior to novel stimuli in some birds, and to a novel perceptual task in a pigeon. These results suggested that these species have a metacognitive ability to recognize confidence about perceptual decisions.

Poster#15

**Dancing baby — How do 3- to 4-month-old infants respond to a musical beat? —**

Shinya Fujii[1,2], Hama Watanabe[1], Masaya Hirashima[1], Daichi Nozaki[1], Gentaro Taga[1]

([1] The University of Tokyo, Japan, [2]JSPS, Japan)

***Abstract***

The human capacity for music consists of certain core phenomena, including the ability to synchronize motor actions with an external auditory beat (i.e., dancing ability). It has recently been found that not only humans but also vocal mimicking animals (e.g., parrot and cockatoo) are able to move in rhythmic synchrony to a musical beat, leading to a hypothesis that our capacity for vocal mimicry emerged as a by-product of the ability of auditory-motor entrainment. To gain further insight into neurobiological and evolutionary origin of our own abilities to know self and others, we must clarify infants' ability of auditory-motor entrainment from the point of view of development. However, very little is known about its earliest manifestations. Here, we show the ability of entrainment to a musical beat in 3- to 4-month-old infants. We investigated the limb motions of the infants by using three-dimensional motion capture system and demonstrate how they responded to dance music.

Poster#16

**Learning and identity formation: Bridging between diverse communities**

Toru Kawai

(Kyoto University, Japan)

***Abstract***

In contemporary society, social structure appears to have fragmented and changed their form. For youth, it seems that the school to work transition has been more precarious and complex. Then, their identity formations become precarious and uncertain. In this situation, the activities in their daily life would become important. They try to resolve their own problems, seeking information and acting reflectively. And then educational practices in higher education play a more important role. Only in effective educational practice, people can learn deeply, reflect on their actions effectively, and develop highly. What kinds of educational practices would be effective and make student learning deep? How do students learn, reflect, and develop? I have focused on the relationship between in-class learning and out-of-class activity/learning. For student learning and educational practices, it is important that students can relate in-class experience and knowledge to out-of-class activity, and vice versa.

Poster#17

**Wittgensteinian approach to the concept of person: Attitude toward the other**

Hirotaka Sugita

(Hiroshima University, Japan)

***Abstract***

Educational researchers are inclined to use the concept of person self-evidently in speaking of an aim of education, and also in describing each child's personality. It is also supposed that, independently of our relation to an individual, we can ascribe the concept to him/her. However, this view of the concept seems not to illustrate a relational feature of the concept. This study explicates the feature by considering Wittgensteinian claims of Carl Elliott and Stanley Cavell. By focusing on Wittgenstein's remarks about 'an attitude toward a soul', Elliott insists that our ascribing the concept of person to a human being represents *both* the fact that the being is a person *and* our ethical attitude toward the person. Cavell suggests that Wittgenstein's conception of aspect-seeing show us that our knowledge of the other is linked to our reaction to him/her. Their Wittgensteinian approaches will give us a better understanding of the concept.

Poster#18

**How well do we know others' preferences?**

Ryosuke Niimi, Katsumi Watanabe

(The University of Tokyo, Japan)

***Abstract***

The present study investigated the human ability to predict others' preference. In Experiment1, 20 participants rated the subjective likability of 32 common objects. In Experiment2, new 20 participants were asked to predict the results of Experiment 1 (i.e., others' preference). Averaged rating of likability (Experiment1) significantly correlated ($r = 0.68$) with averaged prediction of likability ratings (Experiment2). However, the averaged rating did not correlate well with each individual's prediction (mean $r = 0.29$). Thus, a prediction of others' likability by a single person was not reliable. Further, the averaged prediction of likability rating did not correlate well with individual's likability (mean $r = .27$); namely, the group prediction of each individual's likability rating was not reliable either. These results suggest that human metacognition of preference of or by a single individual may be unreliable in general.

Poster#19

**Positioning self in maternal family relationship: Using the image drawing method**

Naoko Nishiyama

(Kyoto University, Japan)

***Abstract***

This study discusses intergenerational and maternal family relationships. We focused on three-generational women's kinship as a unit and on total patterns characterizing the "grandmother-mother-daughter" relational configuration. Using the visual narrative approach with the Image Drawing Method (Yamada, 1988), the participants were asked to draw three images (past/present/future) of their three-generational relationships including them. In study1, the participants were 100 female Japanese university students (*M* age = 20.7 years), and they answered from a standpoint of young adult daughters. In study2, the participants were 71 mid-life women (*M* age = 48.8 years,) and they answered from standpoints of both mother and daughter. The data were analyzed by a qualitative method. As a result, four fundamental patterns of the relationship were identified: 'dyad and one,' 'triangle,' 'side by side,' and 'wrapped.' Although the positions or roles were changed, they had a tendency to draw the images in the same relational patterns.

Poster#20

**Who needs self-control?: Self-control behavior and motivation**

Takayuki Goto

(Kyoto University, Japan)

***Abstract***

The present research investigated the moderator effects of autonomy on the relationship between affect regulation and task performance. The previous research revealed that those who had high autonomy needed less effort to exert self-control than those who had low autonomy. However, it is unclear that when people with high autonomy work on a frustrated task, whether they feel the necessity of self-control, or not. The present research examined hypothesis that the performance on the frustrated task was predicted by the interaction of autonomy and affect regulation, which is supposed to be activated only when people need self-control. Results showed that interaction significantly predicted task performance. If participants had low autonomy, affect regulation positively predicted the task performance. However, if participants had high autonomy, there was no significant relation. Results demonstrate that only people with low autonomy need self-control to work on frustrated task, but people with

high autonomy not.

Poster#21

**Awareness of self and other through the expression of caring**

Mahito Katsuura, Tabitha S. Kobata

(Kyoto University, Japan)

***Abstract***

Young children sometimes have difficulty differentiating their own needs from others' which then affects the child's inability to perform pro-socially (Hoffman, 1982). However, children have also been seen to behave pro-socially through actions such as caring from an early age. This qualitative study examines the recognition of self and other through the practice of caring amongst children. As a social conditioning factor, children in the elementary and middle school classroom settings have been observed and episodic data has been collected. In addition, with children requiring special assistance joining the regular mainstream elementary and middle school classroom in Japan, attention is also being placed on the needs of children with developmental disorders. In doing so, the practice of caring by children including those requiring special assistance is also being recognized as a necessity.

Poster#22

**MPFC dissociation between self and others in referential task: An fMRI study based on word traits indicated by reaction time**

Ken Yaoi[1,2], Mariko Osaka[3], Naoyuki Osaka[1]

([1]Kyoto University, Japan; [2]JSPS, Japan; [3]Osaka University, Japan)

***Abstract***

In recent years, there have been a number of neuroimaging studies using self referential tasks, that have investigated whether the self referential process is dependent on a unique neural basis, especially in the medial prefrontal cortex. But these studies provided contradictory results across experiments, despite the use of a similar paradigm. We hypothesized that a part of this discrepancies was derived from personality of each participant for each referring word. Therefore, we measured brain activity during self and other referential tasks and investigated whether this brain activity dissociated by word traits indicated by each participant's reaction time (faster or slower). The results showed difference activation between self and other, only in slow words condition. Self_slow condition showed greater activation in ventromedial prefrontal cortex and anterior cingulate cortex while other_slow condition showed

activation in middle temporal gyrus.

Poster#23

**Relationship between cooperative choices in the payoff-game situations and social discount rates in pigeons**

Kumiko Hara, Masato Ito, Daisuke Saeki, Tetsuo Yamaguchi
(Kyoto University, Japan)

***Abstract***

We examined if there is any relationship between the tendency of cooperation in the payoff-game situations and social discount rates. In the payoff-game situations, subjects played the repeated games between cooperative alternative and defective alternative defined by sharing and unsharing feeding areas, as well as by the amount of food reinforcers. As the game matrixes, the Prisoner's dilemma game and the Chicken game were used. Pigeons played against a computer or a stooge who took tit-for-tat strategy. In social discount situations, subjects chose between sharing feeding area and unsharing feeding area. In the sharing area, other pigeons could competitively eat food pellets delivered, and in the unsharing area, subjects could eat all pellets delivered. In the Chicken game playing against a stooge, there was a negative correlation between cooperative choices and the social discount rates.

Poster#24

**Recognition of others' knowledge in dogs**

Yijin Li
(Kyoto University, Japan)

***Abstract***

This study investigates whether dogs can recognize the knowledge of others. The experimenter hided the food in one of the two containers behind the screen and then removed the screen. Next two people attended one after another. In experiment 1, one people looked inside of containers one by one; next, the other one touched the lids of containers in the same order. In experiment 2, I changed the action to look inside of containers into the action to smell by keeping close to container. At last, knower and guesser pointed either one of two containers simultaneously before the dog. I recorded dogs' choosing. The result is not expected that the dogs are probably to follow the knower' pointing than the guesser's. But it is not possible to conclude that the dog cannot recognize the knowledge of the others'. I will modify the methods and continue the study.

Poster#25

**Does experience with role play activate theory of mind in a perspective taking task?**

Fumikazu Furumi, Masuo Koyasu

(Kyoto University, Japan)

***Abstract***

The present study aimed at studying development of theory of mind after adolescent. Forty university students were divided into two groups (role play group and no role play group) and they were introduced to a perspective taking task in which use of theory of mind is essential. On each trial participants viewed a shelf on the computer display which contained several familiar objects, and were instructed to touch an object on the shelf in accord with the order by a 'rabbit manager' who stood at the opposite side of the shelf and could not always see the entire objects. The no role play group made more mistakes than the role play group, and spent longer time to respond to the touch panel display. The effects of role play lasted during five blocks. These results suggest that experience with role play would activate theory of mind in the perspective taking task.

Poster#26

**Can infants predict objects from human and robot's gaze cue?**

Yuko Okumura[1], Yasuhiro Kanakogi[1,2], Shoji Itakura[1]

([1]Kyoto University, Japan; [2]JSPS, Japan)

***Abstract***

Previous study demonstrated that infants held referential expectations when they followed human gaze and inferred the objects accordingly. However, no study investigated whether infants show the anticipatory eye movements when they infer objects. In the present study, we examined infants' ability to predict objects from the gaze cue. Additionally, to investigate whether the influence of gaze differed as a function of the agent, we compared the influence between human and robot. We presented 10- and 12-month-olds with movies of a female or a robot shifting its gaze toward one of two locations. The results revealed that the only 12-month-olds predicted objects from the gaze cue at greater than chance level when the agent was human, but not robot. 10-month-olds didn't predict objects, irrespective of agents. These results suggest that 12-month-olds perceive the different referential nature toward human and robot, and try to learn only from human.

Poster#27

**Motionese influences infants' understanding and imitation of goal-directed action**

Hiroshi Fukuyama, Masako Myowa-Yamakoshi

(Kyoto University, Japan)

***Abstract***

Adults modify their actions when interacting with infants. The infant-directed modifications, called "motionese", highlight some aspects of actions and attract infant's attention. This study investigated the factors influencing infants' imitation of goal-directed actions by focusing on motionese, especially on adults' emotional information (smiling and eye contact). In Study 1, 14-month-old infants observed an adult's goal-directed action under the following two conditions; emotional information was provided into either aspect of the action, 1) the process or 2) the goal. Results showed that the infants imitated the aspect of the action accompanying emotional information more often than the other. In Study 2, the adult demonstrated the same action in Study 1, except the either aspect of the action accompanied with the physical sound instead of emotional information. The infants reproduced the goal of the action irrespective of the conditions. We discuss the role of adults' emotional information in motionese.

Poster#28

**The effect of facial attractiveness and sex on recognition memory**

Kana Kuraguchi, Hiroshi Ashida

Kyoto University

***Abstract***

We investigated the effect of facial attractiveness on recognition memory. Both female and male facial images were judged for their attractiveness etc. and incidental memory was tested. Recognition performance was shown as d' and analyzed with a 2 (sex of participant) × 2 (condition of attractiveness) ANOVA. For female faces, the interaction was significant. In contrast, for male faces, the interaction was not significant. Therefore, it is suggested that the difference of sex affects the recognition memory concerning facial attractiveness. In particular, attractiveness of female faces had different effects for women than in other combinations.

Poster#29

**Does in-group cooperation generate out-group threat?**

Sho Tsuboi

(Kyoto University, Japan)

***Abstract***

Past studies have revealed that out-group threat may cause in-group cooperation. We investigated an alternate possibility: that in-group cooperation would generate out-group threat. The reason is that a highly cooperative group, which is likely to be highly productive, can be an attractive target for attacks from out-groups intent on taking resources. Therefore, members of highly cooperative groups might estimate the probability of out-group attacks as higher than would less cooperative groups, and might become more sensitive to out-group threat than less cooperative groups. In the present experiment, we manipulated participants' impressions about their in-group's cooperation rate (high vs. low) and compared scores on questionnaires about out-group threat between the conditions. We found that participants in the high cooperation condition estimated out-group threat to be significantly stronger than participants in the low cooperation did. This sensitivity to out-group threat may be a major factor in achieving mutual cooperation in social dilemmas.

Poster#30

**Individual differences of perceiving power**

Yasunori Okada, Takashi Kusumi

(Kyoto University, Japan)

***Abstract***

This study examined what is a core belief of having power in Japan and relationships among the personal beliefs of power, a generalized sense of having power and approach-inhibition tendency. In this study, power was defined as a potential ability to influence others. The results revealed that people felt high responsibility rather than freedom of behavior when they have power and people with a high inhibition tendency showed high responsibility and low freedom of behavior when they have power. Furthermore, freedom of behavior in having power was based on a low inhibition tendency and a high sense of having power.

Poster#31

**Two ways of understanding human action: Anscombe's distinction between practical knowledge and speculative knowledge**

Yuuki Yamaguchi

Hiroshima University, Japan

***Abstract***

The purpose of this study is to elucidate two forms of the theory about human action, especially concerning the relationship between knowledge and action. There are, originally in the action theory of philosophy, two forms. One of them is a speculative one purposing to mediate discord about action that has been done. And the other is a practical one purposing to bring about an aimed action. Many studies have paid attention to the former, and little attention to the latter. The trend of these studies entails the following problem; It can be discussed what was the action (*the truth*). But it is scarcely discussed how we bring about a desirable action (*the good*). This study, using Anscombe's philosophy, tries to elucidate the significance of practical knowledge. And also this study, Anscombe does not necessarily tries to, tries to elucidate the significance of speculative knowledge, in contrast with practical knowledge.

Poster#32

**Self-other confusion caused by undifferentiated visual perception: A clue to the understanding of others' actions**

Yuji Kawai[1], Yukie Nagai[1], Minoru Asada[1, 2]

([1]Osaka University, Japan; [2] JST ERATO Asada Synergistic Intelligence Project, Japan)

***Abstract***

Undifferentiated visual perception of young infants might make them confuse the self-motion with its imitation of others. We demonstrate such a confusion using a baby robot interacting with a human imitator. The robot perceives the self-motion and the imitator's as optical flows, of which the spatial and the directional resolutions change low to high over the development. The robot calculates the distance between the two motions while performing several hand gestures. Our experiment shows that the distance between the self- and the imitator's motions is small (i.e., they are confused) at low resolution. They only become differentiated as the robot's vision develops. The result further indicates a role of self-other confusion in the understanding of others' actions. The confusion in visual perception might enable infants as well as the robot to associate the self-motor commands and the others' imitation, which leads to the understanding of others' actions.

Poster#33

**Cultural effect on attentional control style in visual search tasks**

Lei Chen[1], Yoshiyuki Ueda[1], Jun Saiki[1], Michelle Dusko[2], Emily Cramer[2], Ronald A. Rensink[2]

([1]Kyoto University, Japan; [2]University of British Columbia)

***Abstract***

It has been suggested that East Asians have more holistic cognition, while Westerners are more analytic. However, whether and how low-level cognitive processes not involving thought, such as visual attention, could also be influenced by culture remains unclear. In this study, we used a line-length search task, manipulated the size of search area and conducted the experiments between North Americans and Japanese. Search asymmetries that a long line among short ones was easier to find than the vice versa were observed only except among the Japanese subjects when the search area became larger. The results suggest that the Japanese subjects might tend to use a smaller attentional window or keep their attention zoomed in much more than the North Americans during search processes so as to compensate the lost of detailed information needed to identify the target, which might be caused by their holistic cognition style.

Poster#34

**University students' out-of-class learning**

Yan Jiang

(Kyoto University, Japan)

***Abstract***

It may be normal to prepare for class or to do some homework out-of-class in foreign countries. But in Japan, university students usually don't study out-of-class. According to some surveys, they spent only 1-5 hours a week for out-of-class learning. By law, they have to study 45 hours for one credit, including 15 hours in class and 30 hours out of class. Obviously, they study too little for the credits they receive. Why don't they study out-of-class? How should we prompt out-of-class learning? These questions are the focus of my research. I focused Japanese students' opinions on in class learning and out-of-class learning. I used a questionnaire survey and a 5-point scale in my research. Factor analysis, the Pearson correlations analysis and cluster analysis were used. The features of each cluster and their implications for education were discussed.

Poster#35

**Academic motivation effects of performance for university students**

Kai Hatano

(Kyoto University, Japan)

***Abstract***

The purpose of this study is to examine the impact of college students' academic motivation on academic performance and vocational commitment. In Japan, little attention has been paid to academic motivation. Recently, however the concern for motivation has been growing because academic motivation is important after graduation. College faculty need to increase students' academic motivation. Academic motivation needs to be examined in detail now. This study tries to show the data on the impact of motivation on academic performance and vocational commitment. It was found from the results that the motivation, "desire to improve", "intellectual curiosity", effects these performances. A further direction of this study will be to provide more evidence for this result.

Poster#36

**Teachers' collaborative reflection on course design in higher education**

Makiko Oyama

(Kyoto University, Japan)

***Abstract***

The purpose of this study is to establish of environment that promote teachers' collaborative reflection on course design in higher education. Recently, the concern with teaching design has been growing in higher education because students are diversity. Especially, active-learning style has been brought to public attention. The active-learning style is difficult to intervene teachers in class. Therefore, Teachers have many things to make a plan before the class. However, the support environment is not enough, so teachers have trouble in higher education. In this study I would like to approach "course design project" through action research using "MOST" and clarify teachers' awareness through the project.